Lead In Missouri

Low doses of lead can damage the central nervous system of infants and children, causing seizures, disabilities and behavior disorders. In children and adults, lead causes fatigue, disturbed sleep and decreased fitness. It damages the kidneys, liver and blood-forming organs. It is suspected of causing high blood pressure and heart disease. High levels damage the nervous system and cause seizures, comas and death. The National Ambient Air Quality Standards (NAAQS) are established EPA and limit the amount of certain pollutants allowed in outside air. These limits are based on what is safe for humans to breathe. The NAAQS standard for lead is set at 1.5 micrograms per cubic meter averaged over a calendar quarter. The federal Clean Air Act Amendments of 1990 require states to bring all nonattainment areas into compliance with the lead standard. Lead emissions are reduced through control strategies and clean work practices. All methods of reducing lead emissions are included into the Missouri State Implementation Plan (SIP) for lead, making them enforceable.

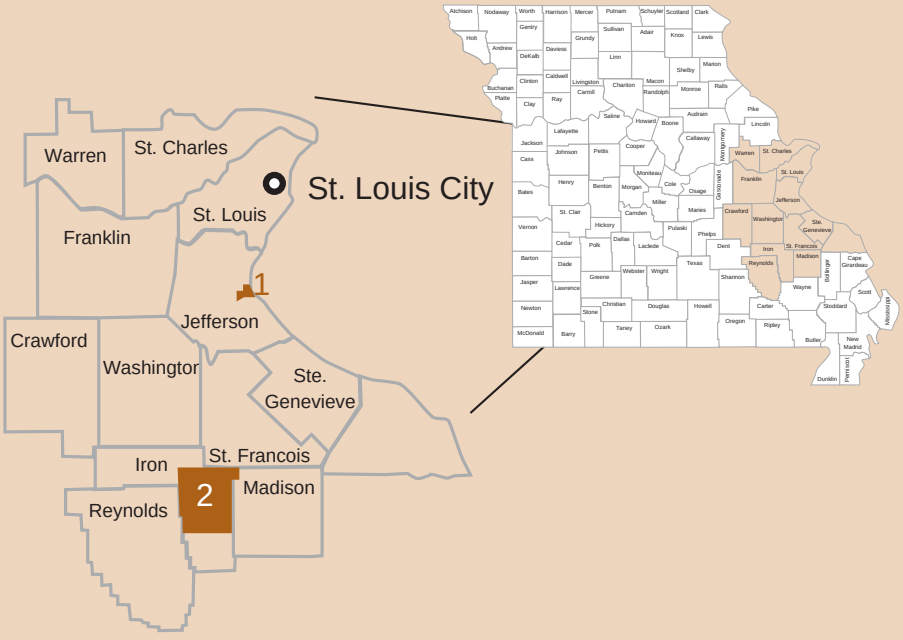
At the beginning of 2001, there were two areas designated as being in **nonattainment** for **lead** standards, Herculaneum and Glover. The Doe Run Company operates primary **lead smelters** within these areas.

Herculaneum Plan Approval

The Department of Natural Resources' Air Pollution Control Program revised the control strategy for the Herculaneum **lead SIP**. The department's Air Pollution Control Program presented this plan for public hearing on Oct. 26, 2000. The **Missouri Air Conservation Commission** adopted the plan Dec. 7, 2000. This plan was submitted to EPA on Jan. 9, 2001 and EPA determined that the plan submittal was complete on Jan. 18, 2001.

The plan involved the development of an emission inventory protocol, observation of emission testing, oversight and review of on-site meteorological data, development of a comprehensive hour-by-hour emission inventory, development and considerable refinements of a dispersion model, three rounds of receptor modeling and model reconciliation. The emission control

Lead Nonattainment Areas



Nonattainment Area		Primary Lead Emitter
1	City of Herculaneum.....	Doe Run, Herculaneum
2	Liberty/Arcadia Township.....	Doe Run, Glover

strategy involves enclosure of the main processes at the plant and the installation of building ventilation systems. The ventilation gases will be filtered by state-of-the-art, high-efficiency filtration systems. Capital costs are expected to be about $12 million. Doe Run is required to install all of the emission controls by July 31, 2002.

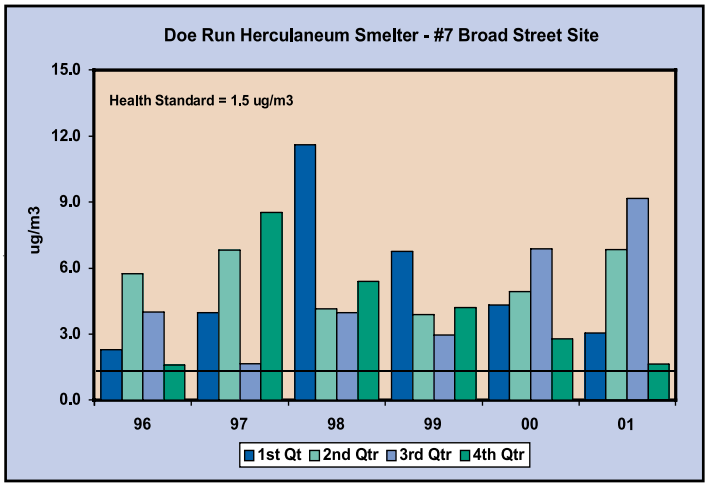
Air quality data for the area shows continued violations of the **lead NAAQS**, most notably at the Broad Street monitor. This monitor is located within a few hundred yards of the facility. Review of the monitoring shows that this monitor gives very high readings on days when the prevailing winds blow directly from the plant to the monitor.

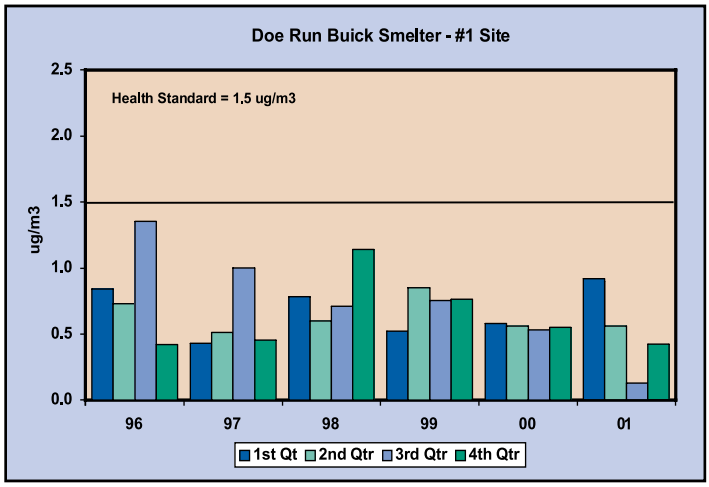
In late August 2001, **lead**-bearing materials were discovered on the city streets of Herculaneum, along the route that Doe Run uses to haul concentrated ores into the plant. The contamination decreased with distance from the plant. This material likely fell off of the tires and tailgates of trucks as they left the plant. These ores may have become airborne as vehicles drove over it. The Department of Natural Resources ordered Doe Run to clean up the streets, and much of that work has been completed. The order also required Doe Run to inspect and clean the concentrate trucks before they left the plant. Additional air monitors were installed to measure any potential impact that the street dust might be having on residents.

The Department has kept the residents of Herculaneum informed through the use of direct mailings and Web site (http:\\www.dnr.stat.mo.us/env/herc.htm.) Many residents have voiced concerns about the truck traffic and concentrate hauling practices. The company is investigating other options for the delivery of concentrate to the facility.

Glover Plan

Air monitors near the Doe Run-Glover **Smelter** have not shown a violation of the **NAAQS** since the **SIP** controls were installed on Dec. 31, 1996. The department held preliminary meetings with Glover to discuss re-designation of the area to **attainment**. A re-designation request for this area will be developed in 2002.





Average Quarterly Concentrations of Lead in Ambient Air Near Lead Smelters in Missouri

*Since Missouri is the chief **lead**-mining district in the nation, with several **smelters**, the department conducts ambient monitoring for **lead**. Developed by EPA, the health standard for **lead** defines the maximum safe level for human exposure to this otherwise useful metal. The **National Ambient Air Quality Standard** for **lead** is 1.5 micrograms per cubic meter, averaged from all the monitor filters in one-quarter of the year. Currently, the Herculaneum **smelter** is the only one registering **exceedances** of the airborne **lead** standard.*